# Constructing Assessment Model of Primary and Secondary Educational Quality with Talent Quality as the Core Standard

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Received: October 29, 2014 Accepted: November 13, 2014 Online Published: November 19, 2014

Fund project: Chongqing Development and Reform Commission: Research on standardization in Chongqing urban and rural primary and secondary school; Central University Special Funding for Basic Scientific Research Business: Discipline team research project (No.: 2362014 xk03); Central University Special Funding for Basic Scientific Research Business: Research on the public values of employment in Chongqing hukou reform (No.: SWU1109061)

### Abstract

in U&R areas.

Quality is the core of education and it is important to standardization construction of primary and secondary education in urban (U) and rural (R) areas. The ultimate goal of the integration of urban and rural education is to pursuit quality urban and rural education. Based on analysing the related policy basis and the existing assessment models of urban and rural educational quality in primary and secondary schools, and through the content and the assessment index system of the standard of urban and rural educational quality in primary and secondary schools, this study is to construct a scientific, effective and very operational statistical model to assess the current quality of primary and secondary education in urban and rural areas. With the correlation coefficient to measure the development status of their educational quality and through the example calculation, this study confirms that the assessment model has good diagnostic function. According to the actual functions of the assessment model, this study puts forward some corresponding suggestions.

**Keywords:** urban and rural education, talent quality, primary and secondary schools, assessment model **1. Introduction** 

# development, but it is also an important content for standardization construction of primary and secondary education in urban and rural areas. The integration of urban and rural education refers to the process that based on the core value orientation of educational equality, breaking up the dual-structures of urban and rural areas and keeping and developing the characteristics and advantages of urban and rural education to construct U&R education community, so as to realize the process of the balanced development of U&R education gradually by promoting U&R education to connect, help and eliminate the gap with each other(Ling et al., 2012). It is not hard to see that the purpose of integration of U&R education is not only to realize the balanced development of urban and rural education, what is more important is to pursue a quality education. *The Dakar Framework for Action* points out that the quality is the core of education and the previous experiences indicates that only improving educational quality can attract the children come to school (Huang et al., 2011). In this context, the pursuit of quality education has become the ultimate goal of the integration of U&R education. What is meant by quality education, its standard and how to assess the quality education have become important tasks for the

The integration of urban and rural education is a hot issue in the current elementary education reform and

# 2. Deviation in the Assessment Standard of P&S Educational Quality in U&R Areas

Since twenty-first Century, the quality of education has aroused widespread attention around the world and to improve the quality of education has become the priority among priorities of the development of education (Huang et al., 2011). *Medium & Long—Term Plan of Educational Reform and Development of China* 

integration of U&R education, and even for the standardization construction of primary and secondary education

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(2010-2020) also specified that the overall goal of education is to promote "the development in an all-round way morally, intellectually and physically and the coordinated development of personality". Report at 18<sup>th</sup> Party Congress proposed the goal of "building moderately prosperous society and implementing the new requirements" and for education it states explicitly to "build education that satisfies people", "to actualize the precedence development" and "to promote impartial education" and so on. As you can see from these measures, the quality of education has become a hot issue of common concern to the state, society and people, as well as to reflect that there does exist certain problems about our educational quality. "Building education that satisfies people" has rather high command and pursuit on "quality" and "quantity" than the past goal, "making nine-year compulsory education generally available". In the meantime, the standard of elementary education is changed or improved. Society calls for quality education and parents want their children to go to a good school, which has become the common understanding of the general public. However, a good school is not only for the students to have a school, but also to let students in it get due healthy, harmonious and happiness development.

Only the education satisfies the needs of the people, it can be said quality education. However, the current researches on the quality of education are mainly on higher education, and the studies of the quality of elementary education are relatively weak. Through the existing literatures, currently in understanding on the quality of elementary education there is a certain deviation, in which obscure connotation is the main reason; also, the quality of elementary education especially rural educations needs to be strengthened. For example, studies have shown that the quality of rural education in our country is generally low. To cause it there are many reasons, such as lack of investment and teachers, the backward concept and assessment mechanism, etc (Yu & Chou, 2006), and some also say that the quality of education is equal to the academic performance of students (Ji, 2010). If the connotation of the quality of elementary education cannot be grasped well, it is hard to give quality education, let alone the satisfied education for people.

In addition, there is certain problem on the assessment system of elementary educational quality. Judging from the existing literature, the idea of assessment, assessment index and assessment methods are more or less biased. For example, some studies point out that the standard of the assessment index of elementary educational quality is single, focuses more on the hardware quality and neglects the development of students, also it attaches importance to the results and neglects the expansibility(Zhang & Zhao, 2010); The idea of curriculum hasn't won the support among the people and the assessment mechanism of students' development is still according to academic performance, also the quality of school and the performance of teachers are still the enrolment rate in tradition(Yu & Chou, 2006). With the improvement of the talents' quality under the new time and the correct understanding of the connotation of educational quality, the past assessment standard and mechanism are obviously backward. New assessment standard, method and mechanism are needed in urgent to guide and regulate the current standardization construction of primary and secondary education in urban and rural areas.

# 3. Construction Foundation of Assessment Model of P&S Educational Quality

Education is an activity for cultivating people, and then human development becomes the core theme of education and also the core standard of education quality. The new assessment model of P&S educational quality of U&R areas is mainly on the following foundations:

At first, the connotation of education quality shall be specified. Different education quality cultivated different students out and are according to different assessment standard and method. Education quality is the evaluation of the educational level and effect. The standard of this evaluation is the educational purpose and training objectives of schools at different levels (Gu, 1990). Speaking of the elementary education, its core quality is that the students can have "the development in an all-round way morally, intellectually and physically and the coordinated development". The quality of students' development holds the core position in the quality of elementary education and it determines the quality of school education, other factors such as hardware quality, teaching facilities, teachers' quality and cultural management are expanded according to the quality of students' development and are the factors of to guarantee the full realization of quality of students' development. As mentioned earlier, focusing education quality on hardware standard, management condition, the quality of teachers, or the students' achievement or their performance of moral character is a one-sided view of education quality. The assessment of education quality under new curriculum reform needs a comprehensive view of education quality, which requires to be back to the nature of education and start from the goal of elementary, as well as to sort out the connotation and standard of education and the structural relation between each standard.

Secondly, the functions of education shall be recognized. Correct assessment of educational quality should also be understood from the functions of education (Huang et al., 2011). Educational function is to pass the knowledge and experience accumulated by human to the next generation, to promote their physical and mental

development for social needs, to ensure and promote social development (Gu, 1990). The functions of education include the human's developmental and social function. As for elementary education, human's development (talent training) is the core function of elementary education and human's development is supposed to be the core of the quality of primary and secondary education. The core functions can not play their roles without the insured factors mentioned before, such as teacher development, teaching, facilities, supplies, and culture. Hence, the teaching quality assessment of primary and secondary education in urban and rural areas must adhere to the multi-dimensional and multi-level concept and quality assessment system whose core standard is talent training (human's development) quality (Zhao, 2012). Only recognizing the important internal logic functional relationship between the development of insured factors and the development of students (core function of elementary education), can the students in urban and rural areas be ensured to have access to the "quality education" from noumenon meaning and can the functions of elementary education be achieved. In fact, constructing the educational quality assessment criteria with the student development function as the core has always been the assessment concept of western elementary educational quality. For example, the quality of primary and secondary education in Japan attaches great importance to the development of students, their assessment criteria of educational quality mainly consists of scholastic ability test and learning situation (Li, 2008). Britain increases the proportion of vocational courses in secondary education and strengthens the development of students' practical skills (Zhai, 2005), French also focuses on developing students' practical ability (Global Digest, 2003) while the United States proposes a series of safeguard measures which are centered on the development of students to improve the quality of elementary education, such as increasing the funding, updating educational philosophy, providing curriculum standards, introducing information technology, providing training of teachers quality, improving the educational quality monitoring mechanism, reducing class size, strengthening the teaching reform, focusing on early childhood education, establishing an accountability system, etc (Gong, 2012; Feng, 2009). The practice of these countries epitomizes that the development of students is the core function of educational quality and other factors are all insured factors to ensure the realization of student development function. This provides an important reference to the establishment of a scientific and effective assessment model.

Thirdly, quality education does not mean high quality education. Just as one institute puts it: the balanced development of education in urban and rural areas is not average and parallel, even not the development simply pursuing to narrow the gap but a "fullest" development on their own "plasticity" developmental level (Zhang & Zhu, 2011), instead of "high-end development". Therefore, quality education does not mean that the higher scores in each assessment index, but the association degree between the development of students and the validity of various insured factors. The higher the degree, the better the quality of education, or the lower the degree, the worse the quality of education. This assessment method will force educators to foster the assessment concept with students' development as the core standard, avoiding the simple pursuit of good basic conditions or the wrong educational quality concept that believes high scores means high quality. Thus, the establishment of this assessment model should regard the connotative assessment as the core, that is, governing the quality of other insured factors with the quality of talent development as the core (Zhao, 2012), concerning about the actual development of students in order to reflect the essential content of educational quality.

Finally, currently, the overall situation of primary and secondary educational quality in urban and rural areas in China is not very high, especially the quality of rural education is worrying, mainly because of the deviation of our assessment criteria. In terms of the nature of the schools, the essence of schools should be talent training, schools can not exist without students, so the quality of education can only be human development. The current assessment criteria ignore this core standard, simply pursuing material aspects of schools, such as the construction of facilities; and it also focus on the student achievements and the quantity of infrastructures on assessment method (Ji, 2010; Zhang & Zhao, 2010); most current assessment methods are based on student achievements and index quantification as well as weight setting (Liang & Chengfu, 2010). In essence, it only makes judgment of "have or nor" or "more or less" on various factors that affect the quality of education, not effective measurement of the quality of development of students. In other words, the "amount" of insured factors can not guarantee the quality of education; there are schools with bad basic conditions which have education of high quality. In the context of urban and rural areas, the ultimate goal of the integration of urban and rural education will be difficult to implement if people continue to adhere to this "misunderstanding". Obviously, the isolated assessment index is meaningless, quality education must comprehensively consider the logical association degree between the development of students and the insured factors, rather than simply talk about cause and effect.

# 4. Index system and Operation Process of Assessment Model of P&S Educational Quality

The establishment of assessment index is a prerequisite for the establishment of assessment model. According to the presentation about the development of urban and rural education in the *National and Medium- and Long-Term Plan for Education Reform and Development* (2010-2020), based on the correct understanding of conceptual analysis of integration of urban and rural education as well as inadequacy of quality assessment criteria, the education quality assessment model (see Table 1) is established with the guidance of the six-dimensional and four-level talent quality criteria and monitoring systems, the help of Western elementary educational quality assessment concept which treats the development of students as the core (Xiangri, 2009) and the reference of educational quality standard system in urban and rural areas. This standard system contains 5 first-class indicators (A), 15 second-class indicators (B), 44 third-class indicators (C). It consists of the core quality-talent training and the quality of its insured factors, which reflects the concept that talent training is the core standard of the quality of urban and rural elementary education, and comprehensively reflects the critical point of current urban and rural educational quality and the inherent logic relationship. It meets the purposes of urban and rural elementary education as well as the connotation of educational quality, getting closer to the connotation of international elementary educational quality.

Table 1. Evaluation system of balanced development of urban-rural primary and secondary education

	Second-level indicator		Primary school			High		Balanced
First dimension		Third-level indicator				school		coefficient
			City level	Town level	Village level	City level	Town level	-
A <sub>1</sub> Development standard		C <sub>1</sub> Morality						
		C <sub>2</sub> Intelligence						
	B <sub>1</sub> Student	C <sub>3</sub> Sports						
	Development	C <sub>4</sub> Aesthetic						
		C <sub>5</sub> Speciality						
	B <sub>2</sub> Teacher Development	C <sub>6</sub> Comprehensive Quality						
		C <sub>7</sub> Professional Ethics						
		C <sub>8</sub> Specialized Knowledge						
		C <sub>9</sub> Teaching Skill						
		C <sub>10</sub> Continuing Education						
	B <sub>3</sub> school development	C <sub>11</sub> appearance change						
		C <sub>12</sub> spirit						
		C <sub>13</sub> social evaluation						
A <sub>2</sub> Teaching standard	B <sub>4</sub> Curriculum	C <sub>14</sub> Major Subjects Implementation						
		C <sub>15</sub> Deputy Subjects						

C12 Traditional Methods C13 New C13 New C13 Method C14 Method C15 Method C16 Method C17			Implementation
Reform  C17Traditional Methods C18New  B2 Teaching Method Approach C19 Method Innovation  C29 Usage C21 Scientificity C22 Artistry  C23 Average Appropriation C23 Vatrifion Subsidies Investment  C24 Cap Usage C25 Teachers' Salaries  C35 Student-Teacher Ratio C27 Student Average Area C28 Student Average Area C29 Usage C29 Usage C21 Scientificity C22 Artistry  C33 Average Appropriation C35 Teachers' Salaries  C36 Student-Teacher Ratio C27 Student Average Area C28 Student Average Book C29 Student Average Computer C39 Student Average Computer C39 Student Average Computer C39 Student Average Instrument  C31 Canteen Standard C32 Toilet Standard C33 Scientificity C34 Humanity C34 Humanity C35 Humanity C36 Humanity C36 Humanity C37 Toilet C38 Humanity C38 Hu			
Methods C18New  C19Nethod Approach C19Method Innovation  C20Method Innovation  C30 Usage B6 C21 Scientificity Technology  C22 Artistry  C23 Average Appropriation C24 Nutrition Subsidies Investment C25 Teachers' Salaries  C26 Student-Teacher Ratio C37 Student Average Area C38 Student Average Area C39 Student Average Area C39 Student Average Area C39 Student Average Area C30 Student Average Area C30 Student Average Computer C30 Student Average Computer C30 Student Average Instrument  C31 Canteen Standard Standard Standard Standard Standard Standard C32 Scientificity C34 Full manity C35 Full manity C36 Full manity C36 Full manity C37 Full manity C38 Full manity C38 Full manity C38 Full manity C38 Full manity C39 Full manity C39 Full manity C30			
Methods C18New  C19Nethod Approach C19Method Innovation  C20Method Innovation  C30 Usage B6 C21 Scientificity Technology  C22 Artistry  C23 Average Appropriation C24 Nutrition Subsidies Investment C25 Teachers' Salaries  C26 Student-Teacher Ratio C37 Student Average Area C38 Student Average Area C39 Student Average Area C39 Student Average Area C39 Student Average Area C30 Student Average Area C30 Student Average Computer C30 Student Average Computer C30 Student Average Instrument  C31 Canteen Standard Standard Standard Standard Standard Standard C32 Scientificity C34 Full manity C35 Full manity C36 Full manity C36 Full manity C37 Full manity C38 Full manity C38 Full manity C38 Full manity C38 Full manity C39 Full manity C39 Full manity C30			
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$			
Method Approach C <sub>19</sub> Method Innovation  C <sub>20</sub> Usage B <sub>8</sub> C <sub>21</sub> Scientificity C <sub>22</sub> Artistry  C <sub>23</sub> Average Appropriation B <sub>7</sub> C <sub>24</sub> Nutrition Subsidies Investment Investment C <sub>25</sub> Teachers' Salaries  C <sub>25</sub> Student-Teacher Ratio C <sub>27</sub> Student Average Area C <sub>28</sub> Student Average Area C <sub>29</sub> Student Average Book C <sub>29</sub> Student Average Gomputer C <sub>30</sub> Student Average Instrument  C <sub>31</sub> Canteen Standard Standard Standard Standard C <sub>31</sub> Canteen Standard Standard Standard C <sub>31</sub> Canteen Standard Standard C <sub>32</sub> Toilet Standard C <sub>31</sub> Canteen Standard Standard C <sub>31</sub> Canteen Standard Standard C <sub>32</sub> Toilet Standard C <sub>33</sub> Scientificity C <sub>44</sub> Humanity Philosophy			C <sub>18</sub> New
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$			
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$			
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$			C <sub>20</sub> Usage
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$\begin{array}{c} Appropriation \\ B_7 \\ Government \\ Investment \\ Investment \\ C_{25} Teachers' \\ Salaries \\ \\ \\ C_{25} Teachers' \\ Salaries \\ \\ \\ C_{25} Teachers' \\ Salaries \\ \\ \\ \\ C_{25} Teachers' \\ Salaries \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\$			C <sub>22</sub> Artistry
$\begin{array}{c} B_7 \\ \text{Government} \\ \text{Investment} \\ \text{Investment} \\ \\ C_{25} \text{ Teachers'} \\ \text{Salaries} \\ \\ \\ C_{26} \\ \text{Student-Teacher} \\ \text{Ratio} \\ C_{27} \text{ Student} \\ \text{Average Area} \\ \text{Condition} \\ C_{28} \text{Student} \\ \text{Average Book} \\ \text{Condition} \\ C_{29} \text{ Student} \\ \text{Average} \\ \text{Computer} \\ \text{Computer} \\ \text{C}_{30} \text{ Student} \\ \text{Average} \\ \text{Instrument} \\ \\ \\ B_9 \text{ Health} \\ \text{standard} \\ \\ C_{31} \text{ Canteen} \\ \text{Standard} \\ \\ C_{32} \text{ Toilet} \\ \text{Standard} \\ \\ C_{33} \text{ Scientificity} \\ \\ \text{Educational} \\ \text{Chiteria} \\ \\ \\ \text{Philosophy} \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\$			C <sub>23</sub> Average
$\begin{array}{c} \text{Government} \\ \text{Investment} \\ \text{Investment} \\ \\ C_{25} \text{ Teachers'} \\ \text{Salaries} \\ \\ \\ C_{26} \\ \text{Student-Teacher} \\ \text{Ratio} \\ \\ C_{27} \text{ Student} \\ \text{Average Area} \\ \text{Average Area} \\ \text{Condition} \\ \\ C_{28} \text{Student} \\ \text{Average Book} \\ \text{Condition} \\ \\ C_{29} \text{ Student} \\ \text{Average} \\ \text{Computer} \\ \\ C_{30} \text{ Student} \\ \text{Average} \\ \text{Computer} \\ \\ C_{30} \text{ Student} \\ \text{Average} \\ \text{Instrument} \\ \\ \\ \\ B_{9} \text{ Health} \\ \text{standard} \\ \\ \\ C_{31} \text{ Canteen} \\ \text{Standard} \\ \\ \\ C_{32} \text{ Toilet} \\ \text{Standard} \\ \\ \\ \\ \\ C_{33} \text{ Scientificity} \\ \\ \\ \\ \\ C_{34} \text{ Humanity} \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\$			
$\begin{array}{c} \text{Investment} & C_{25}  \text{Teachers'} \\ \text{Salaries} \\ \\ & \begin{array}{c} C_{26} \\ \text{Student-Teacher} \\ \text{Ratio} \\ \\ C_{27}  \text{Student} \\ \text{Average Area} \\ \text{Average Area} \\ \text{Condition} \\ & C_{28}  \text{Student} \\ \text{Average Book} \\ \text{Condition} \\ & C_{29}  \text{Student} \\ \text{Average Book} \\ \text{Computer} \\ & C_{30}  \text{Student} \\ \text{Average} \\ \text{Instrument} \\ \\ \\ & \begin{array}{c} C_{31}  \text{Canteen} \\ \text{Standard} \\ \text{Standard} \\ \\ & C_{32}  \text{Toilet} \\ \text{Standard} \\ \\ & C_{33}  \text{Scientificity} \\ \\ & C_{34}  \text{Humanity} \\ \\ & C_{11}  \text{Canten} \\ \\ & C_{34}  \text{Humanity} \\ \\ & C_{12}  \text{Toilet} \\ \\ & C_{34}  \text{Humanity} \\ \\ & C_{11}  \text{Canten} \\ \\ & C_{34}  \text{Humanity} \\ \\ & C_{12}  \text{Toilet} \\ \\ & C_{13}  \text{Canten} \\ \\ & C_{14}  \text{Humanity} \\ \\ & C_{15}  \text{Contribute} \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\$		Government	
$A_3 \text{ Hardware standard} \\ B_8 \text{ Average} \\ Condition \\ B_8 \text{ Average Book} \\ C_{29} \text{ Student} \\ A_{29} \text{ Student} \\ A_{20} \text{ Student} \\ C_{31} \text{ Canteen} \\ Standard \\ C_{32} \text{ Toilet} \\ Standard \\ A_{4} \text{ Culture} \\ C_{10} \text{ Student} \\ C_{34} \text{ Humanity} \\ C_{35}  H$			
$A_3 \ Hardware \ standard \ B_8 \ Average \ Condition \ C_{29} \ Student \ Average Book \ Condition \ C_{29} \ Student \ Average \ Computer \ C_{30} \ Student \ Average \ Instrument \ B_9 \ Health \ standard \ C_{31} \ Canteen \ Standard \ C_{32} \ Toilet \ Standard \ C_{32} \ Toilet \ Standard \ C_{34} \ Humanity \ C_{34} \ Humanity \ C_{34} \ Humanity \ C_{34} \ Humanity \ C_{35} \ C_{34} \ Humanity \ C_{35} \ C_{35} \ C_{36} \$			Student-Teacher Ratio
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	A . Hardware		Average Area
$Average \\ Computer \\ C_{30} Student \\ Average \\ Instrument$ $B_9 Health \\ standard$ $C_{31} Canteen \\ Standard$ $C_{32} Toilet \\ Standard$ $C_{32} Toilet \\ Standard$ $A_4 Culture \\ Criteria$ $B_{10} C_{33} Scientificity$ $C_{34} Humanity$ $C_{74} Humanity$			
$\begin{array}{c} C_{30} Student \\ Average \\ Instrument \end{array}$ $\begin{array}{c} C_{31} Canteen \\ Standard \\ C_{32} Toilet \\ Standard \end{array}$ $\begin{array}{c} C_{31} Canteen \\ Standard \\ C_{32} Toilet \\ Standard \end{array}$ $\begin{array}{c} C_{32} Toilet \\ Standard \\ \end{array}$ $\begin{array}{c} C_{33} Scientificity \\ C_{34} Humanity \\ \end{array}$			Average
$\begin{array}{cccccccccccccccccccccccccccccccccccc$			C <sub>30</sub> Student Average
$\begin{array}{cccccccccccccccccccccccccccccccccccc$			
A <sub>4</sub> Culture Educational C <sub>34</sub> Humanity Criteria Philosophy			
A <sub>4</sub> Culture Educational C <sub>34</sub> Humanity Criteria Philosophy		Educational	C <sub>33</sub> Scientificity
B <sub>11</sub> School C <sub>35</sub> Historic			
		B <sub>11</sub> School	C <sub>35</sub> Historic

·		
	Characteristic	C <sub>36</sub> Endemicity
	B <sub>12</sub> Campus Beautification	C <sub>37</sub> Connotations Associated C <sub>38</sub> Appearance
	B <sub>13</sub> System Improvement	C <sub>39</sub> Institutional Settings C <sub>40</sub> System Implementation
A <sub>5</sub> Management Standard	B <sub>14</sub> Management Method	C <sub>41</sub> Clear C <sub>42</sub> Effective
	B <sub>15</sub> Evaluation Mechanism	C <sub>43</sub> Enforcement Department C <sub>44</sub> Incentive Policy

*Note*. This index system is the research result by Zhao Lingli and Deng Cuiju, two other members in the same project team.

According to the table above and the content mentioned previously, the quality assessment model of urban and rural primary and secondary education is constructed. It calculation process is divided into the following steps, which will eventually use the correlation coefficient to judge the educational quality of urban and rural primary and secondary schools.

# 4.1 Establishing the Assessment Sets

According to the actual situation of the constructed index system, give a set of expert judgment in the third-class indicator (C) and the second-class indicator (B). Use the rating system in the form of {1 to 10}, each experts participating in assessment should give scores based on the national or local quality standards for urban and rural primary and secondary education, with a full understanding of the existing development situation of some school (the school needs to submit relevant materials according to the quality standard system and the material shall describe the relationship between insured factors and student development in details). If the school is fully compliance with the standards, then the score is 10. The further the existing state of development from the standards, the lower the score. In this case, each third-class, second-class and first-class indicators (sum via the corresponding index scores) will give a quantitative value.

# 4.2 Establishing the Database

Start SPSS (Statistical Package for the Social Sciences) and establish a variable database with a total of 62 indicators as the variables, in which 60 are assessment indicators of urban and rural primary and secondary educational quality and one is a total insured factor index value. Then input the quantitative values collected (step1) which are mainly the third-class indicators according to the corresponding variable names. The second-class indicators need to sum the included third-class indicators, the first-class indicators need to sum the included second-class and third-class indicators so as to complete the establishment of the original database. In addition to the variables corresponding to assessment index, the original database may also includes several categories of variables, such as urban and rural schools category (urban primary school, town primary school, village primary school, urban secondary school, rural secondary school), gender, grade, etc., in order to carry out the corresponding analysis and comparison if necessary.

# 4.3 Calculating the Correlation Coefficient

Then use SPSS data analysis function to select all 51 variables to calculate the correlation coefficient. Reject the correlation coefficients of each insured factors in the results, only keeping the correlation coefficient between

Student Development (B and C) and indicators of other insured factors, recorded as Rij and  $R_T$ . Either Rij or  $R_T$  can be calculated by the following formula:

$$R = \left| \frac{N\Sigma XY - \Sigma X\Sigma Y}{\sqrt{N\Sigma X^2 - (\Sigma X)^2} \sqrt{N\Sigma Y^2 - (\Sigma Y)^2}} \right|$$

In which N is the number of assessment experts, X is the each index score for the development of students, Y is the score for each insured factors, Rij is correlation between Student Development and various indicators of insured factors, in which the value of i can be B1, C1  $\sim$  C5; the value of j can be A2  $\sim$  A5, B2  $\sim$  B15, C6  $\sim$  C44; R<sub>T</sub> is the total correlation coefficient, the correlation of Student Development (B1), Teacher Development (B2), School Development (B3) and the mean value of first-class indicators (A2  $\sim$  A5). In this way, we can get several correlation coefficients between various indicators of Student Development and the insured factors as well as the total correlation coefficient.

### 4.4 Assessment Criteria

As mentioned above, quality education refers to the degree of association between student development and the effectiveness of various insured factors. Therefore, the correlation coefficient between each indicator of student development and the effectiveness of various insured factors reflects the real level of educational quality. Based on the results of SPSS data analysis, whether each correlation coefficient reaches the significance is obvious. If Rij reached the significant, it shows the quality of the index is high and it is an effective indicator. The greater the Rij value, the better the quality of the index; if Rij did not reach the significance, the smaller the value, it shows the quality of the index is low and it is not valid, showing that the index failed to play its effectiveness and its due role on student development. Even if the conditions are better, we can not guarantee the effective development of students. Low quality indicators will lead students to have aversion on the indicators, which is bound to affect their development. Thus, schools should reflect the construction of the index if Rij did not reach significant targets, schools should find remedies to play its due role. The measurement of the overall educational quality of schools can be judged by R<sub>T</sub>. If R<sub>T</sub> reaches the significance, it can be determined that the quality of education is high. It is quality education; on the contrary, if it does not reach the significant, it indicates that the quality of education is low. It is not quality education.

# 5. Calculation and Suggestions of the Model

According to the established assessment indicators of primary and secondary educational quality in urban and rural areas, we extracted partial data of primary educational quality assessment of a certain district (county), and calculated the quality of education with the built model assessment method, as shown in Table 2.

Table 2. Correlation coefficient (R) of educational quality assessment of a primary school in urban and rural areas

	Student (B <sub>1</sub> )	development	Morality (C <sub>1</sub> )	Intelligence (C <sub>2</sub> )
Curriculum (B <sub>4</sub> )	0.45*		0.191	.605*
Major subject implementation $(C_{14})$	.723**		0.208	.922**
Teaching method (B <sub>5</sub> )	.899**		0.029	.689**
Government investment (B <sub>7</sub> )	.981**		0.176	.824**
Student Average Books (C <sub>28</sub> )	.219		0.182	.162
$\begin{array}{ccc} Student & Average & Computer \\ (C_{29}) & & \end{array}$	0.185		0.215	.193
Total correlation coefficient (Rt)	.785**		0.651*	.818**

*Note.* \*\*<0.01, \*<0.05.

The purpose of this part is to calculate whether the model can effectively reflect the actual situation of the present basic educational quality. Therefore, Table 2 only lists some indicators of teaching and hardware standard

calculated by formula, as well as correlation coefficients of some indicators about student development. From Table 2, it can be seen that major subject implementation and teaching method are significantly correlated with student development and intellectual education. It shows that these high-quality indicators basically ensure student development; similarly in the aspect of hardware standard, government investment is basically used to promote student development. Meanwhile, the indicators of book per student and computer per student are not significantly correlated with student development, moral education and intellectual education, which indicates that these two indicators have relatively poor construction quality, and badly need to be improved; in the aspect of moral education in student development, correlation coefficients of all indicates are not significant. It shows that this primary school should pay more attention to the development of moral education, or there is not enough investment in moral education for students in this primary school, badly needing to be improved. The general trend is basically consistent with all indicates. It is in accord with some practical situations of present primary and secondary educational quality in urban and rural areas. For example, research has reported that there are many problems existing in urban and rural integration balanced development of compulsory education, such as under-investment of educational funds, school conditions needed improvement, significant gap of faculty between urban and rural schools (Lu & Ma, 2011). However, these differences can only be regarded as comparison of pure quantification, not taking their relationship with students' practical development into consideration. Hence, some indicators seemingly reflect the same problem, but there are problems existing in most of them. Taking insufficient government input as the example, this problem doesn't exist in this research model. Although there may be input deficiency, the funds of government input on education are basically used in the development of student. That is quality education. Thus, striving merely for quantitative comparison may bring about some "misunderstandings", as well as cause some "waste" of resources for educational quality assurance. Model after modification can assess primary and secondary educational quality in urban and rural areas scientifically and effectively, thus to provide reliable data reference for administrative department of education, the state and the society objectively and accurately, further to provide powerful and feasible basis for education decisions.

This research is based on the connotation and assessment criteria of standardized construction of primary and secondary school education in urban and rural areas, under the theoretical direction of "the policy for establishing quality education" and "the core of education quality is talent cultivation quality". Using connotations, standards and assessment concepts of western basic education quality for reference, the assessment model that can effectively reflect primary and secondary educational quality in urban and rural areas is established. Through data measurement, it is proved that this model is of certain assessing effectiveness. In order to utilize the model effectively, the following problems need to be paid attention in the process of using:

- (1) To establish a correct concept of primary and secondary educational quality in urban and rural areas. The establishment of this correct concept is the premise to effectively assess the educational quality in urban and rural areas. Substantially, concept of quality should regard talent cultivation quality as the core, governing other quality assurance factors. Quality education doesn't mean "high-end quality", "assurance factor quality", but the effective correlation degree between talent cultivation quality and other quality assurance factors. Such assessment concept can effectively avoid the pursuit of simple quantification of hardware and software facilities, as well as the one-sided concept of quality ignoring students' actual development, thus to really put the quality concept of comprehensive education into practice.
- (2) To improve the assessment criteria of primary and secondary educational quality in urban and rural areas. Assessment criteria of indicators are the basis of effective operation of the whole model, made by the state and local governments according to the types of schools and social development demands, as well as the talent quality standard framework of "six dimensionalities and four levels"(Zhao, 2012). To set up the education quality standards of four levels including state, local area, school and individual, thus to increase the scientificity, veracity and validity of assessment, so as to provide basis for justice rating of schools of various levels and types.
- (3) To ensure the objectivity of expert grading. The objectivity of expert grading is the key for the quality assessment model to effectively come into play. During the actual assessment, the accomplishment, assessment approaches of experts and assessment materials provided by the schools should be monitored, thus to avoid invalid assessment.
- (4) Explanations to correlation index. The interpretation of the correlation index is the guideline to measure education quality of primary and secondary schools in urban and rural areas. Its explanatory power directly affects national departments of decision-making and their corresponding measures. Therefore, it is necessary to strive for objective, fair and scientific on explanation. Any index that has low correlation index should be

- improved. The previous assessment model measures education quality from quantitative amount or weight, which cannot reflect the condition of students' development substantially.
- (5) Weight of assessment index. This assessment model and a model of balanced development (constructed by another paper) have not has the index weight quantized. The reason is the weight quantization only distinguishes the importance of indexes, but it cannot indicate the correlation between it and students' development. For each index of primary and secondary education, what is important is how they help to students' actual development, but not how important they are. From the essence of education quality, the core is that the ensuring factors that influence students' development improve in what degree, but not how much or how important it is. Thus, from this sense, weight allocation is obviously biased.
- (6) Advantages and disadvantages of the model. The advantage refers to that it analyzes the development status of primary and secondary educational quality in urban and rural areas, and emphasizes the vertical comparison of indicators of primary and secondary internal educational quality in urban and rural areas, not the horizontal comparison. Therefore, this model is not suitable for the horizontal comparison among schools in urban and rural areas. Other established assessment models should be used for reference.

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